The Change of Environmental Art Design Methods in the Digital Age

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Abstract

The digital age generally refers to the post information society, which is a new era after the industrial age and the information age. In the digital age, with the wide application of digital technology, the environmental art design field also widely uses this technology, which promotes the environmental art design method to produce the huge change. This paper introduces the meaning of environmental art design, digital era and digital technology, discusses the relationship between environmental art design and the application of digital technology, and probes into the application fields of how digital technology promotes the transformation of environmental art design methods. The research in this paper is helpful to clarify the ideas and ways to improve the environmental art design method with the help of digital technology in the digital era.

Keywords

Environmental Art Design; Design Method Change; Digital Technology; Digital Age

Introduction

Environmental art design is a practical art that integrates the indoor and outdoor space environment of the building through art design. Traditional environmental art design is carried out by hand, which leads to low design efficiency and limited work quality improvement. In the digital era, digital technology is gradually widely used in environmental art design, which has a profound change in environmental art design methods (Goodman, 1990). At present, there are few literatures on the application of digital technology in environmental art design at home and abroad. In foreign related research, some scholars discussed the issue of originality and reproduction of art in the digital age, and studied the impact of product design on cultural and artistic heritage in the digital age (Çakmakçıoğlu, 2017). In domestic research, some scholars discussed the application and

development of digital technology in environmental art design, and carried out research on the application of digital technology in environmental art design. From the existing research literature, the research content mainly focuses on the application of digital technology in environmental art design, and there is no report on the research from the perspective of digital technology promoting the transformation of environmental art design methods.

Explain the Related Concepts of Environmental Art Design and Digital Technology

As an important branch of design discipline, environmental art design has developed rapidly in recent years. Environmental art design mainly refers to the design of overall planning and construction for the interior and exterior of living space. Compared with the previous planning and design of indoor living space layout, today's environmental art design has gradually expanded to the outdoor field, such as the overall design of a city environment and the design of urban parks. It can be seen that the extension space of environmental art design is expanding. The digital age generally refers to the post information society, which is a new era after the industrial age and the information age. Digitization is to turn all kinds of information into digital code for program design, and gradually to intelligent and data-based transition. Digital technology is a kind of science and technology accompanying with electronic computer. It refers to the technology of transforming various kinds of information, such as picture, text, sound, image, etc., into binary numbers "0" and "1" that can be recognized by electronic computer, and then carry out operation, processing, storage, transmission and restoration.

The introduction of digital technology into the field of environmental art design is the inevitable result of the development of modern environmental art design. Only by introducing digital technology into this field can we lead the innovation and reform of environmental art design technology. With the continuous development and update of modern computer technology, a large number of new scientific and technological means are widely used in modern design work, such as virtual reality technology and geographic information system, which gradually replace the traditional design mode. Digital technology can also analyze the trend of environmental art design according to the market, or carry out color matching and space composition according to the needs of customers, so as to make the design works more in line with the market demand, and reduce the waste of resources and design costs. In short, digital technology not only makes the process of environmental art design more convenient, but also greatly improves the quality of design works (Xue, 2014).

The Relationship between Environmental Art Design and Digital Technology

The application of digital technology promotes the environmental art design technology, and it in turn promotes the continuous progress of digital technology. Therefore, environmental art design and digital technology interact and promote each other.

Digital Technology Promotes Environmental Art Design Technology Improvement and Method Progress

The progress of science and technology and the application of digital technology make great progress in environmental art design methods, comprehensively change the direction and angle of environmental art design, enhance the depth of environmental art design (Ding, 2018), so as to promote the improvement of environmental art design technology and method progress.

(1) Digital Technology Provides New Methods and Means for Environmental Art Design

The application of digital technology in environmental art design is very different from the past environmental art design. It has changed the situation of drawing by hand. This is reflected not only in the design, but also in the implementation of the drawings. The new design method brought by new technology brings great innovation to the work of art designers. If there is a mistake in drawing by hand, all drawings must be redrawn by hand. Now only part of the drawings need to be modified on the computer, which greatly improves the efficiency of environmental art design. At the same time, through virtual reality technology and big data technology, the cost of design is greatly reduced, the pressure of preliminary work is reduced, and the creative enthusiasm of designers is increased (Jiang, 2016).

(2) Digital Technology Improves the Efficiency of Environmental Art Design Work

Digital technology can keep the previous design scheme and conception in environmental art design, and save the time of repeated work. Using digital technology to carry out environmental art design, we can browse the design drawings of similar concepts through unified search, which saves the designer's thinking time. Designers can also design and modify the drawings according to the changes of the market, which is more convenient and faster than the manual modification on the drawings in the past, and improves the design efficiency. In a word, digital technology enables environmental art designers to have more reference when designing their works, and can freely switch among various design schemes, which is flexible and changeable.

(3) Digital Technology Improves the Quality of Environmental Art Design Works

Through the application of digital technology in environmental art design, environmental art works can be more vivid, more visible, and the sense of design and experience will be more full. Through the virtual reality technology, designers can show their design inspiration more intuitively, on this basis, innovation and production is more convenient, and the environmental art design works produced from this will be more perfect.

Environmental Art Design Promotes Continuous Improvement and Advancement of Digital Technology

(1) Environmental Art Design Promotes the Advancement of Digital Technology in this Field

Digital technology effectively promotes the development of environmental art and design technology, but at the same time, the development of environmental art and design also promotes the progress of digital technology. For example, environmental art design results can help digital technology content display update and improve. The results of environmental art design can classify cloud computing technology according to the design content and improve the page display. The results of environmental art design can promote the virtual reality technology more efficient and accurate through the design works. In short, the development of environmental art design can promote the continuous progress of digital technology in many aspects.

(2) Environmental Art Design Expands the Application Field of Digital Technology

Digital technology is widely used in environmental art design, which effectively expands the application field of digital technology. At present, digital technology accompanying with computer is widely used in the field of environmental art design. In the future, modern technologies such as virtual reality technology and new media technology relying on digital technology will also be widely used in environmental art design.

Application of Digital Technology in Environmental Art Design

Digitalization of Environmental Art Design Concept

Green design concept is an important concept of modern environmental art design. It is mainly in accordance with the purpose of not violating the natural law in the design work. It is necessary to take the ecological self-regulation function into consideration in the design, and also need to select green ecological materials for design. Through the use of computer technology to screen materials,

select the appropriate design address, so that the design works more in line with the objective laws of nature, in order to achieve the purpose of respecting nature and protecting ecology. This is also in line with the requirements of green design concept after the digitization of environmental art design. In the digitization of environmental art and design, an unchangeable principle is to respect nature and protect the environment (Shi & Gu, 2013).

Environmental Art Design Efficiency Improves Digitalization

Today's environmental art design, not only in the design technology to improve their own efficiency, but also need to maximize the rational and effective use of resources. In the environmental art design work, after digitization, design practitioners will no longer use traditional paper when drawing design drawings, but use computer graphics. When the design works need to be deleted, they only need to change the original saved drawings, which greatly improves the design efficiency. Using digital technology can reduce the same labor, reduce the same error, and the design of the program is more convenient to save and scientific research. Through big data technology, we can search out the drawings needed by designers more quickly, compare and use them, and innovate on this basis. This technology reduces the complexity of the design work, thus improving the enthusiasm and creativity of designers.

Digitalization of Environmental Art Design Technology

(1) Using Virtual Reality Technology

Virtual reality technology is a very modern technology, which is widely used in modern environmental art design. It uses three-dimensional simulation technology to bring more real visual and tactile feelings to users. Virtual reality technology is also the combination of a variety of new science and technology, to bring more realistic visual effects, the use of stereo display technology, three-dimensional computer graphics technology, and stereo and language input and output are the technology to bring hearing (Chang, 2017), and so on. With the continuous development of the design work, this technology is gradually integrated into the environmental art design, to bring more perfect experience to the environmental art design, such as the real-time picture of the design through virtual reality technology, so that people have the feeling of being in the scene. Virtual reality technology can make the works of environmental art design more direct and realistic. People can preview the design and composition of buildings according to the templates designed by virtual technology, and choose their favorite residence according to the 3D model designed by virtual technology, and carry out environmental art design according to the works designed by virtual reality technology Modification of design works, etc.

(2) Using Satellite Remote Sensing Technology

Satellite remote sensing technology is a computer technology that receives signals from outer space and uses satellite navigation to observe specific places, such as some more detailed photos, the specific longitude and latitude of the observation site and the top view. This information provides a powerful help to the design of environmental art designers. They can quickly master the basic ground information, accurately calculate the moving path, and then according to the path feedback, the environmental art design and drawings are changed, which greatly saves time and cost. At the same time, the design based on satellite remote sensing technology will make the works more in line with the laws of nature and implement the concept of green design.

(3) Using Geographic Information System Technology

Geographic information system, namely GIS (Hossain, Chaitanya, Bhattacharya, Numada, Morimura & Meguro, 2020). With the support of computer system, geographic information system (GIS) can collect, analyze and flexibly use the geographic distribution data of the whole earth. And the use of this system in environmental art design enables designers to plan and layout according to geographical data according to local conditions, make reasonable use of different spatial layers, collect and analyze spatial data of different layers, for example, according to the principle of layers, it can optimize the planning of tourism path, and then scientifically arrange tourism facilities and outlets to bring convenient services to tourists. The application of geographic information system can reduce the blindness in the process of environmental art design, make the works conform to the scientific law, and it is the perfect combination of art aesthetics and science and technology.

(4) Adopt Artificial Intelligence Technology

The continuous progress and development of artificial intelligence technology makes the relationship between modern environmental art design and intelligent machinery increasingly close. Artificial intelligence technology can help environmental art designers to select relevant themes in the design process by storing pictures, video data and design content by computer. It can also help users to screen through data analysis, so as to find the data and content they want more specifically and accurately, which greatly reduces the pressure of work, saves time and improves work efficiency (Ren, 2019). Artificial intelligence technology can also automatically generate color scheme according to the needs of users, so that the color of the works designed by designers can meet the needs of users. In the case of fully understanding the needs of customers, the acceptance of the design has also been greatly improved. Artificial intelligence technology can also provide intelligent drawing repair service, that is, according to the needs of users, the automatic repair process can reduce the tedious work content of environmental art designers, and make customers

actively participate in the design work. In addition, AI design can also compare and analyze the big data in the market, analyze the market according to the data feedback, and then predict the popularity of future products according to the analysis data, which can not only reduce the design cost of enterprises, but also help enterprises occupy the market share in the future.

(5) Adopt Big Data Technology

Big data system is mainly based on massive data storage, and through the analysis of data to make a reasonable prediction of future results. Big data technology provides a more scientific and comprehensive perspective for environmental art design, making urban design more intelligent. Big data makes the experience of designers and experts fully integrated, and also conducive to the public to participate in the design, so that the design works more in line with the expectations of the public. Big data technology is an auxiliary technical means in environmental art design. The analysis of big data can improve the rationality of design works and the scientificity of designer's decision to change works. Through a large number of data for comparative study, we can design a more ideal scheme, also greatly improve the speed of designers' design works, and give full play to the imagination and creativity of designers.

(6) Using Cloud Computing Technology

Cloud computing is a distributed computing technology, which can automatically process tens of thousands of data information and decompose it into several sub units, which only takes a few seconds (Yi, 2019). Cloud computing technology and Internet technology cooperate with each other, and contribute to the promotion and application of big data technology. Cloud computing system greatly saves the time of environmental art design, and improves the efficiency and accuracy of design work. Cloud computing system is also used in the teaching of environmental art design, such as the design of teaching assistant system of Google cloud platform. This system is divided into various learning and communication modules, which can meet the different needs of designers' independent learning or communication and cooperation, and bring convenience to the teaching of environmental art design, and make students better complementary learning.

Digitalization of Environmental Art Design Market Analysis

Market is an important evaluation standard for the quality of environmental art design works. With the development of the times, people's aesthetic is changing. It is very important to do a good job in the preliminary market research, which is conducive to the designer to grasp the market changes and the popular trend of works, design the works needed by the market, and reduce unnecessary waste (Che & Yang, 2019). Therefore, in the design of environmental art works, we should first

investigate and analyze the market, and locate the theme and direction of design works according to the results of market analysis. At the same time, designers also need to estimate the design cost of their own works, so as not to meet the needs of the market due to the high cost, which is also a failed work. The application of digital technology can effectively evaluate and locate market demand, and then design environmental art works according to market analysis.

In addition, the promotion of the market also needs digitization. That is, through the function of computer big data to promote environmental art works efficiently and conveniently, according to the analysis of digital technology, we can focus on the regions or areas with high market demand, and carry out market promotion with emphasis and levels to reduce randomness, which can greatly reduce the cost of market promotion.

Conclusion

Environmental art design is a practical design technology. From the simple interior design to today's indoor and outdoor design, digital technology has played a special important role. Digital technology makes the environment art design have unprecedented changes, and this change is systematic and irreplaceable. Today's designers more and more use virtual reality technology, big data technology to replace the past manual drawing mode, and also more convenient for the preservation, modification and display of design drawings, so that the design adds more experience, design sense, and even inspiration. Moreover, in the modern environmental art design work after the integration of digital technology, designers need to pay more attention to the concept of green ecology and natural harmony. In short, the integration of digital technology in the digital era has brought about great changes in environmental art design methods. With the development of society and the continuous progress of science and technology, this change will continue, and the application of digital technology in environmental art design will be more and more extensive.

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